California Issues - Expanded Use of Ethanol and Alkylates

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Introduction

- Supply Concerns
- Logistics
- Cost Impacts
- Closing Remarks

Supply Concerns

- Refinery Production
- Ethanol Availability
- Alkylate Availability

Supply Concerns - Refinery Production

- California Gasoline Production
  - – Will not meet demand by 2003, at least a 6-10 % shortfall
  - – Production capacity will decline slightly
  - – Demand will be over a million barrels per day by 2003, 6 % greater than 2000

Supply Concerns - Refinery Production (cont.)

- California Gasoline Supply
  - Ethanol provides little, if any, supply benefit during the majority of the year
  - During the low Rvp season (8 months of the year), ethanol in and pentanes out
  - During the winter months, refiners can use butanes and pentanes
  - California will continue to meet demand through increased imports, if the clean components can be obtained

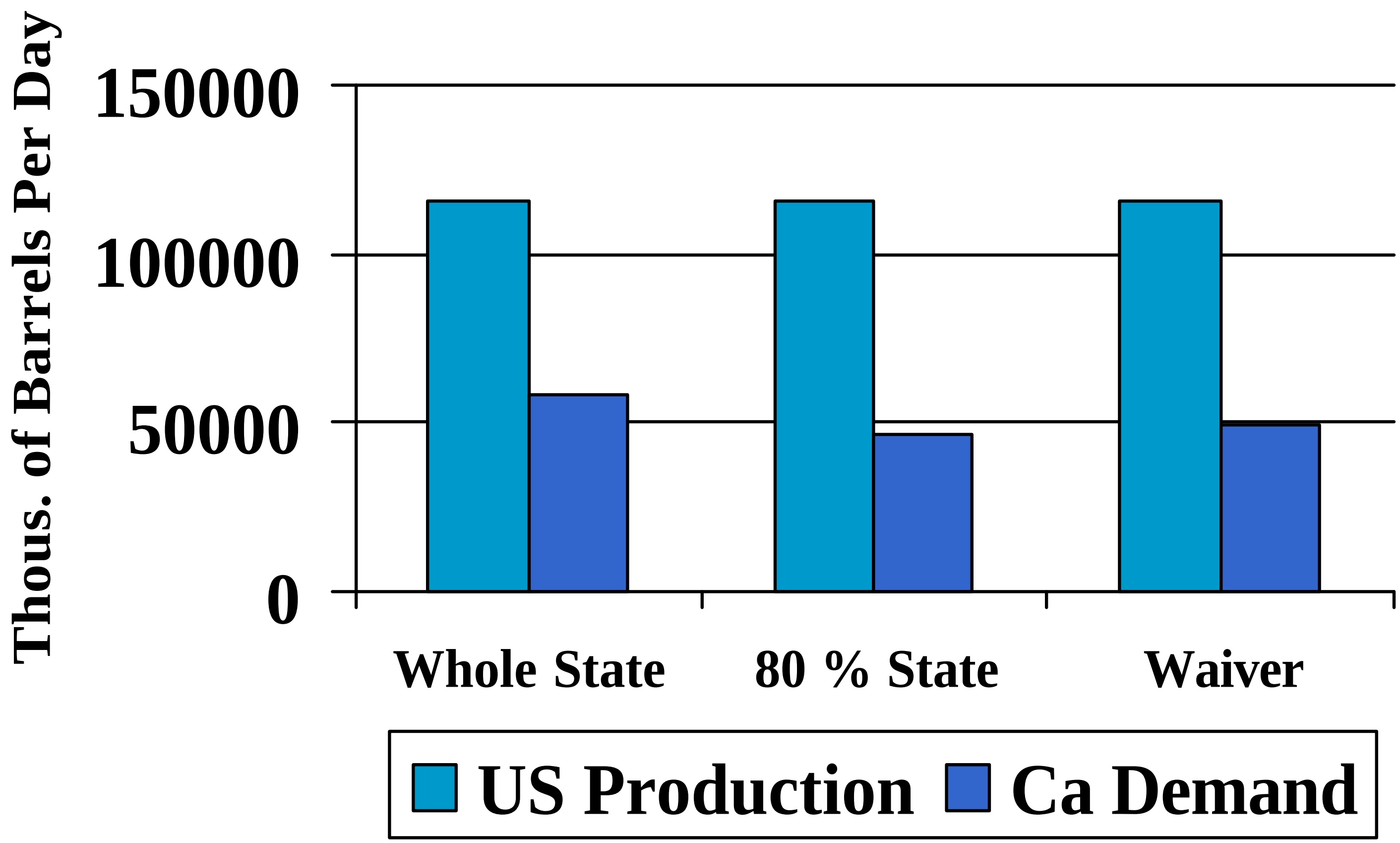
Supply Concerns - Ethanol Availability

- Ethanol Concentration
  – Refiners will use 5.7 % ethanol by volume
  – Some ethanol in use now, but MTBE use will continue until 4th quarter of 2002
  – Most refiners must complete modifications to facilities to be able to blend ethanol during the low Rvp season

Supply Concerns - Ethanol Availability (cont.)

- Ethanol Demand
  - California will require significant quantities of ethanol
  - Without a waiver, 50 percent of current US production, 42 percent with a waiver
  - Expansion of ethanol production capacity must be significant and on line by the Fall of 2002
  - Ethanol from California biomass will not be available prior to 2004 - 2005

US Production vs. Calif. Demand



Supply Concerns - Alkylate Availability

- Alkylate Concentration
  - Already in California gasoline
  - Concentration expected to grow from 15 to 25 percent by volume
  - No equivalent replacement available with similar blending properties

Supply Concerns - Alkylate Availability (cont.)

- Alkylate Demand
  - Imports could top 50 KBPD
  - Critical blending component during the low Rvp season
  - Demand increasing outside California to help achieve complying blends of Federal RFG with ethanol
  - Demand will continue to grow if other areas of the US phase out the use of MTBE

Supply Concerns - Alkylate Availability (cont.)

- Alkylate Supplies
  - Availability a concern, supplies are limited
  - Prices have reached extraordinary levels this year, 35 to 40 cents over USGC clear
  - Sufficient conversions of merchant MTBE facilities unlikely prior to end of 2002
  - “Wait-and-see” stance will contribute to rough transition away from MTBE

Logistics

- Movement of Ethanol to California
- Ethanol Logistics Within the State
- Fungibility & Flexibility Issues
- Alkylate Logistics

Logistics - Ethanol to California

- Marine Vessels
  - US Jones Act vessels will be necessary
  - Fleet size is declining
  - Freight rates could exceed 20 cents per gallon
- Rail Cars
  - Many terminals unable to receive rail
  - Unit car use should evolve, but where?
  - Rolling stock availability and scheduling delays could become issues

Logistics - Within California

- Pipeline Movement
  - Petroleum product pipelines will not be used to transport ethanol or blends
  - Some dedicated pipelines will transport neat ethanol to tankage from tankers
- Terminals
  - Ethanol will be blended at the tanker truck
  - Majority of terminals will receive ethanol from tanker trucks
  - Truck traffic will increase, especially in proximity to terminals

Logistics - Fungibility & Flexibility

- Fungibility
  - – Phase 3 CaRFG with ethanol and non-oxy blends cannot be combined
  - – Segregation needs will grow
  - – Adequacy of tankage, especially at terminals, will be a concern

Logistics - Fungibility & Flexibility (cont.)

- Flexibility
  - Today, refiners can increase concentration of MTBE to ensure adequacy of supplies
  - This practice will be severely diminished or impractical with ethanol blends
  - Failure to receive a waiver from the Federal minimum oxygen requirement will reduce flexibility for refiners
  - Reduced flexibility will translate to higher prices at the pump

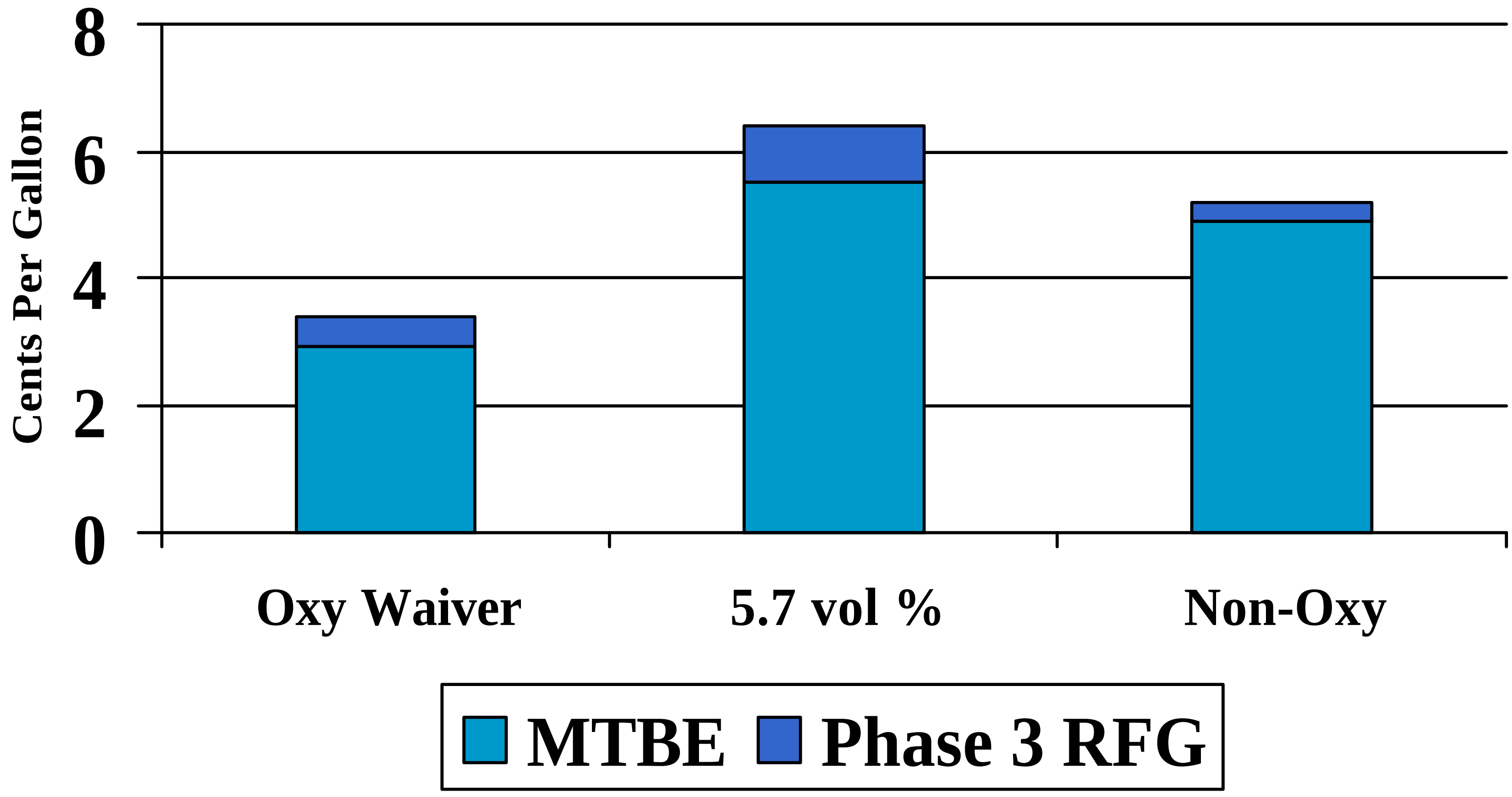
Logistics - Alkylate

- Transportation Less of an Issue
  - – Can use product pipelines
- Alkylates Blended at the Refinery

Cost Impacts

- Ethanol & Non-Oxy Blends
- Ethanol & Alkylate Pricing

Impacts of MTBE Removal and Phase 3 RFG - Average Cost



Cost Impacts - Ethanol & Non-Oxy Blends

- Comparison
  - Waiver scenario least expensive
  - Ethanol case most expensive
  - Failure to issue waiver will cost California consumers at least $450 million per year
  - Loss of fungibility and flexibility associated with the use of ethanol will likely result in costs to consumers well in excess of the original 3 to 6 cent per gallon estimate

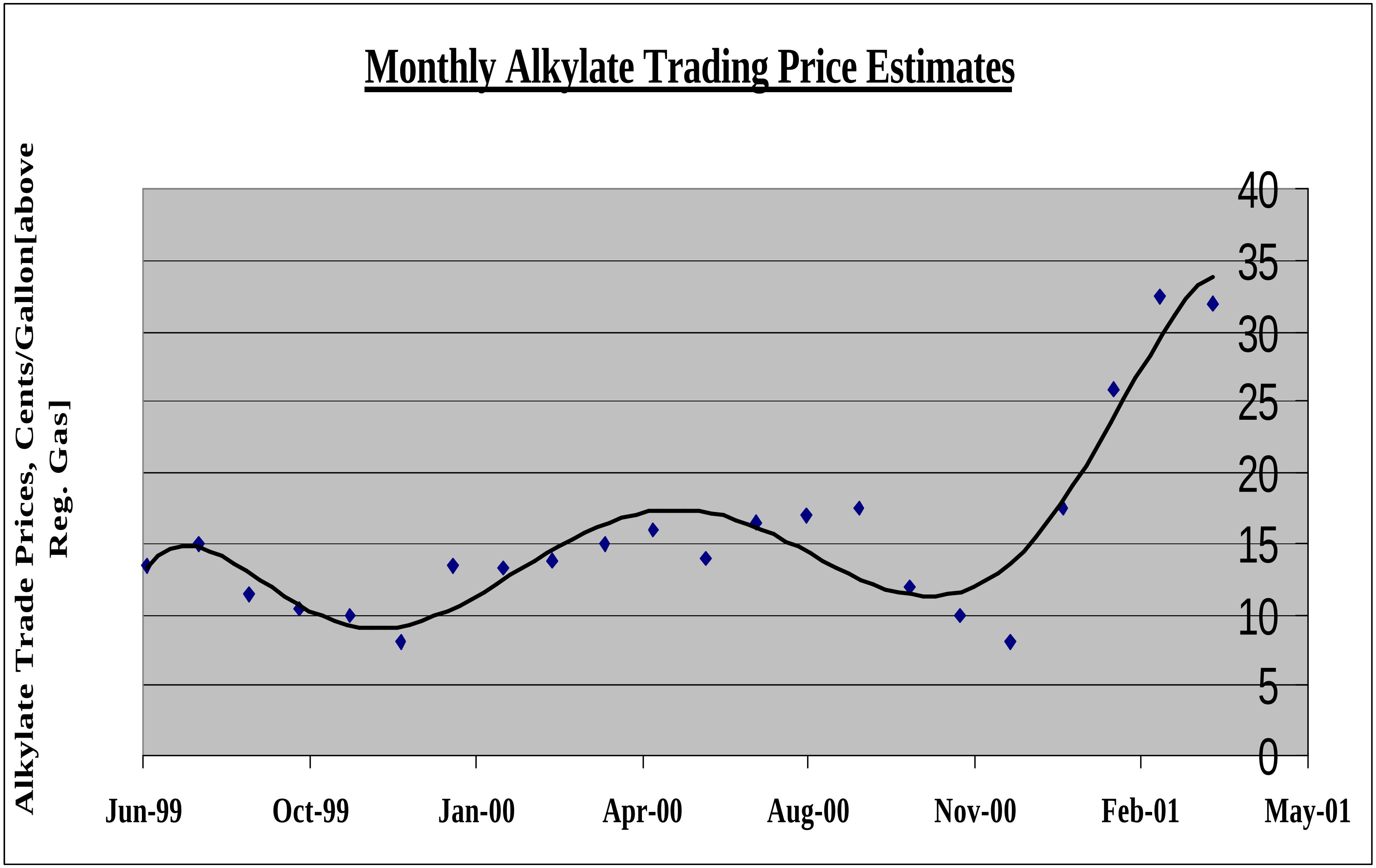
Cost Impacts - Ethanol Pricing

- Ethanol Price Increases
  - Previous estimates too low
  - Recent market prices were reflecting jump in demand
  - Without additional capacity, future prices could be even greater than highest estimates

Cost Impacts - Alkylate Pricing

- Alkylate Price Increases
  - Previous estimates too low
  - High natural gas prices have contributed to recent price spike
  - Market is reflecting desirability of clean components in US and other countries
  - Without additional alkylate capacity build through MTBE plant conversions, future prices could be even greater than today

Cost Impacts - Alkylate Pricing



Other Concerns

- Availability of Imports for California
- Marine Transportation
- MTBE Removal Outside the US
- Renewable Mandate
- Price Spikes

Other Concerns - Availability of Imports

- Outside Sources Could Decline
  - Not all refiners that currently supply the California market will be in a position to produce low volatility base gasoline
  - Import potential for CARBOB could drop
  - Competition for existing production would increase
  - Alkylate and iso-octane supplies would increase in value and importance

Other Concerns - Marine Transportation

- US Jones Act Unduly Increasing Costs
  - Most waterborne ethanol deliveries will need US vessel
  - All alkylate and CARBOB shipments from USGC must arrive via Jones Act ships
  - Cargo movements have been constrained and shipping costs have jumped
  - Situation will deteriorate over the near term
  - Suspension of Jones Act for product movements would directly benefit California consumers

Other Concerns - MTBE Removal Outside The US

- Demand for Premium Blending Components Will Increase
  - – Alkylate supplies could be critical
- Ethanol Demand Will Surge
  - – Excluding California, demand for rest of U.S could total 150 to 200 thousand barrels for day by 2004
  - – Logistical challenge, especially in the Northeast
- Gasoline Will Become More Expensive

Other Concerns - Renewable Mandate

- Renewable Ethanol Mandate Will Not Benefit Gasoline Supplies
  - Flexibility will be diminished if ethanol use required during the low Rvp season
  - Costs will rise if ethanol demand increases beyond today's production levels
  - Demand for alkylates will be higher

Other Concerns - Price Spikes

- Frequency and Magnitude of Price Spikes Could Increase
  - Reduced flexibility
  - Potential decline of import availability
  - Difficulty in obtaining replacement supplies quickly
- Ultimate Pump Price to Consumers Could be Significantly Greater than the Projected Production Cost Increases of an MTBE Phaseout

Closing Remarks

- Producing and Dispensing Gasoline Will be More Challenging
- Removal of Oxygen Mandate Would Minimize Cost Impacts of MTBE Removal and Restore Some Flexibility
- Failure to Resolve the Oxy Waiver Issue is Delaying Some Investment Decisions
  - Ethanol producers
  - Potential MTBE plant conversions

Closing Remarks (cont.)

- Additional MTBE Phaseouts Throughout the U.S. Could Imperil the Adequate Availability of Ethanol and Blending Component Supplies for California and the Rest of the Country
- The Decision to Phaseout MTBE Should Not be Taken Lightly